Recipe for Fire

Which habitat video: Sawgrass Prairie

Subject: Reading, Writing, Fire Ecology, Hydrology

Duration: 1 hour or class period

Group Size: Up to 36 (6-12 breakout groups)

Setting: Outdoors, Classroom

Grades: 4-6

Materials

- Yellow and blue bandanas/strips of cloth/foam balls
- Pencil
- Journal
- Computer with internet capabilities
- Index cards (at least 4" x 6")
- Printed, color copies or sawgrass prairie pictures (1 set per group)

Standards:

Common Core: LACC.4.RI.1.1, LACC.5.RI.1.1, LACC.5.RI.3.7, LACC.6.RI.1.1, LACC.6.W.1.2

NGSSS: LA.4.1.7.3, LA.5.1.7.3, LA.6.1.7.3, SC.4.N.1.6, SC.5.E.7.3, SC.5.E.7.4, SC.5.E.7.5, SC.5.N.1.1, SC.5.P.9.1, SC.5.P.10.1

Vocabulary: ignition, precipitation, humidity, wind speed

Objective(s)

Guiding Question: How are precipitation, humidity, and wind speed related to igniting fires?

Critical Content: Learn the necessary weather conditions conducive to successful fire ignition.

Student Objectives Students will analyze weather conditions to determine if they would be conducive to a fire incident.

Method Students will begin by playing a game in which they play the role of firefighters, fire, and/or fuel for fire to visualize how fire behaves and how firefighters work to stop it. Then, they will view real-life pictures of the sawgrass prairie to make predictions about the likelihood of a fire starting. After viewing a video about the sawgrass prairie, they will revisit their hypothesis and formulate new hypothesis based on the information they acquired from the video. Finally, they will make inferences about the conditions necessary to increase the likelihood of igniting a fire in those areas they deemed as unfit fire conditions.

Background The sawgrass prairie is a fire dependent habitat. Fire provides the habitat with much needed nutrients which are crucial to the survival of plants and animals in this nutrient poor environment. Fire also works to reduce the amount of nonnative species that are quickly growing in the prairies, taking the sparse nutrients from our native Floridian vegetation. Although there are many incidents of naturally created wildfires within the sawgrass prairies, there are instances where it may be necessary to initiate a prescribed burn to keep the prairie healthy and full of life. A prescribed burn is one that is intentionally set after careful planning. It is intended to supply nutrients to the habitat and reduce the risk of a raging wildfire burning uncontrollably through Everglades National Park. These prescribed burns must take place under specific weather conditions for them to be effective and successful.

Suggested Procedures

- Prior to viewing the video, engage students in the following activity adapted from *Fire in Florida's Ecosystems Activity Guide for Grades 3-12*, a program of the Florida Division of Forestry from January 2003. In an open area outdoors, designate one child that acts as the spark that starts a fire. Select one-quarter of the class to act as firefighters and provide them with yellow armbands to wear and a blue bandana to act as water. The remainder of the class will act as the fuel that feeds the fire. Have the spark go to one end of the playing area, and position the firefighters at the other end. Now tell the fuel to disperse and "grow" anywhere they want to on the playing area. They must stand with their arms held out to act like the branches of the vegetation that grows in the area. They may not run from the fire, but once they are tagged by the fire they must join hands with the spark and move as part of the growing fire. Now, the fire continues to capture more fuel as it moves along. Captured fuel must join the growing fire. Fire can either move as a long chain or break into several smaller groups, but they may not travel independently. Once the fire has grown to 3-4 players, firefighters will be asked by the teacher "Do you smell smoke?" When they respond, "Yes!" then allow them to go fight the fire. They can fight fire in three ways: 1) removal of fuels- they may tag the fuels with their blue bandanas and escort them out of the game. Fuels cannot be tagged by the fire once the firefighter is escorting them out, 2) direct attack- firefighters can tag fire with their blue bandanas. From that point, fire must walk since they have been cooled by the fire, and 3) containment- firefighters may work together to contain a spot fire by creating a circle of firefighters around it. If fire tags a firefighter, then they must join the fire. The game is over when no fuel remains or the fire is controlled. Compare the number of players still in the game, to the number of players on the sidelines. Determine who won, the firefighters or the fire?
- Upon returning to the classroom, display real-life photographs of the sawgrass prairie found below. Have students make inferences as to the likelihood of fire occurring in each particular picture. Ask students to explain the conclusions they came up with, citing evidence from the pictures.
- List the words precipitation, humidity, and wind speed on the board. Discuss the meanings of these words and also list them on the board. Once a logical definition has been developed for each word, have students copy these words and definitions down in their journals.
- Allow students to think aloud and work together to discuss how these factors could affect fire in the sawgrass prairie. In their journals, have students write their predictions of how each word could affect fire in the sawgrass prairie.
- Play the Sawgrass Prairie video for the class located at the following web address: http://www.nps.gov/ever/photosmultimedia/mountainsandvalleys.htm.

- After viewing the video, re-display the real-life photographs of the sawgrass prairie. Provide groups of 3-4 students with index cards. On these cards, they will work with their group to formulate a hypothesis about the likelihood of fire occurring in each particular picture. They must rate each vocabulary word as high, medium, or low depending on their hypothesis for each picture and explain how that affected their hypothesis.
- On the same index card, if they concluded that a particular picture would not produce an effective and successful fire, then they must explain what would need to be different about the conditions in order to create the right environment for fire.
- To conclude the day's activities, have students independently answer the guiding question. In their answer, they must include evidence from today's activities to support their response.

Evaluation Students' final analysis of each picture and their determination of likely fire conditions, as well as their explanation of the corrective actions that would need to occur to make an environment "fire-ready." Answer to guiding question that includes relevant evidence from the day's activities.

Extension Students can research and explain two other factors that firefighters consider when planning a prescribed burn and how these factors affect fire. Then, they may share their findings with the class.

Picture#1

Picture#2

Picture#3